AMSAT News Service Weekly Bulletins
Issue: ANS-249
Date: 2015-09-06
Sources: amsat-ans-2015-ans-249-weekly-hyperkitty-496029e207.txt

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AMSAT NEWS SERVICE
ANS-249

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-249 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 249.01
>From AMSAT HQ KENSINGTON, MD.
September 6, 2015
To All RADIO AMATEURS
BID: $ANS-249.01

The Annunal Symposium Banquet on October 17 will feature AMSAT Vice-President Human Spaceflight Frank Bauer, KA3HDO. Tickets for the Banquet can be purchased in the AMSAT Store.

Franks will talk about, “Making a Difference: AMSAT’s Contribution to Navigation and Timing in HEO/GEO Space and Its Profound Impact on Earth and Space Science”

In the mid-1990s, as an engineer at the NASA Goddard Space Flight Center, Frank Bauer, KA3HDO garnered funding and proposed a GPS reception experiment on the AMSAT Phase 3D satellite. The experiment was to measure the signal strength of the GPS satellite constellation while Phase 3D traversed in its High Earth Orbit. This information was critical to understand whether GPS could be practically used for Positioning, Navigation and Timing (PNT) at altitudes above the constellation as well as to map out the GPS satellite antenna patterns, including the side-lobe signals.

At the time, the GPS flight experiment flown on AO-40 was the most comprehensive data reception of GPS signals above the constellation. The AO-40 experiment was cited many times in aerospace literature as it remained the most comprehensive above the constellation data source for nearly a decade. AO-40 mapped the GPS vehicles main and side lobe signals. These results have led many, internationally, to develop weak signal GPS receivers to fly in HEO/GEO in an effort to extract as much navigation and timing data from GPS as possible.

As a result of the AO-40 experiment, the following has occurred:

- In 2006, GPS modified its specifications to protect the main lobe signal for above the constellation space users
- Global space agencies, including NASA, and commercial manufacturers have invested millions of dollars into weak signal tracking GPS receivers that can exploit GPS in HEO/GEO orbits
- Missions flown in the past 12 months have demonstrated game-changing PNT performance improvements through the use of GPS in HEO/GEO
- GPS main and side lobe signals are now routinely being used on many HEO/GEO space vehicles to improve their PNT performance
- Earth weather satellites at GEO will soon use GPS to predict hurricanes and observe severe storms, saving lives
- Space weather satellites are measuring the dynamics of the ionosphere, potentially protecting astronauts in space and enabling better prediction of ionospheric effects
- NASA is working with the GPS directorate on potentially modifying the GPS specification again, this time to protect the GPS sidelobe signals for users in HEO/GEO orbits.

The results from AO-40 have jump-started a profound and game-changing transformation in navigation at HEO/GEO altitudes. It is enabling new and exciting missions in these orbits. This represents a tremendous accomplishment for humanity and will result in saving countless lives. And AMSAT played a key role in making this happen.

Come to the AMSAT Symposium and hear about how AMSAT played a key role in this HEO/GEO transformation!

Frank H. Bauer received his Engineering Bachelor's and Master's degree in Aeronautics and Astronautics from Purdue University. His aerospace career spans over 40 years within NASA and private industry. In his current position he serves as President/Sole Proprietor of FBauer Aerospace Consulting Services, providing systems engineering, GN&C, spaceborne GPS/GNSS, formation flying and small spacecraft development expertise and consultation services. Currently, he supports NASA as a Standing Review Board member of the Commercial Crew program and as a discipline expert as part of the NASA Engineering and Safety Center GN&C Technical Discipline team. He also represents the U.S. government on GPS/GNSS Strategy and Policy, including representing the U.S. on international delegations negotiating joint GNSS interoperability strategies.

Mr. Bauer's primary research interests include spaceborne applications of the Global Positioning System (GPS) and space vehicle formation flying. He was the principal investigator of 4 spaceflight GPS and formation flying experiments including the AMSAT-OSCAR-40 GPS experiment, investigating the use of GPS above the constellation.

His hobbies include astronomy, amateur radio, and flying.

Frank obtained his amateur radio license in 1974 while he was a high school student. Using the callsign KA3HDO, Frank has dedicated his amateur radio activities to several space-related amateur radio initiatives. He is the Vice President of Human Spaceflight Programs for the Radio Amateur Satellite Corporation (AMSAT-NA), the Chairman of the Amateur Radio on the International Space Station (ARISS) international team and the ARISS-US team program manager. As such, he has led the ARISS international team in the development, qualification, testing, and operation of the ham radio systems on-board ISS. This team has pioneered a ham radio system on ISS that serves the amateur radio community through educational outreach, public outreach, and amateur radio experimentation.

Frank was also responsible for setting up and operating the world-wide retransmission of Space Shuttle Air-to-Ground Communications from the Goddard Amateur Radio Club, WA3NAN. This effort, started in 1983 for Owen Garriott's ham-in-space mission, provided a critical conduit of information to hams attemting to contact astronaut hams prior to the time when internet connectivity became ubiquitous.

[ANS thanks the 2015 AMSAT Symposium Posse for the above information]

ARISS Issues Invitation to US Schools, Educational Organizations, Groups

Message to US Educators
Amateur Radio on the International Space Station
Contact Opportunity
Call for Proposals
Proposal Window September 1 – November 1, 2015

The Amateur Radio on the International Space Station (ARISS) Program is seeking formal and informal education institutions and organizations, individually or working together, to host an Amateur Radio contact with a crew member on board the ISS. ARISS anticipates that the contact would be held between July 1 and December 31, 2016. Crew scheduling and ISS orbits will determine the exact contact dates. To maximize these radio contact opportunities, ARISS is looking for organizations that will draw large numbers of participants and integrate the contact into a well-developed education plan.

The deadline to submit a proposal is November 1, 2015. Proposal information and documents can be found at www.arrl.org/hosting-an-ariss-contact.

Informational Sessions
To help organizations in preparing their proposals, the ARISS Program Coordinator will offer hour-long online information sessions. These are designed to provide more information regarding US ARISS contacts and the proposal process and offer an opportunity to ask questions. While attending an online information session is not required, it is strongly encouraged.

These will be offered Thursday, September 17, at 2000 UTC; Tuesday, September 22, at 2000 UTC, and Wednesday, September 30, at 2300 UTC. Advance registration is necessary. E-mail ARISS (ariss(a)arrl.org) to sign up for an information session.

The Opportunity

Crew members aboard the International Space Station will participate in scheduled Amateur Radio contacts. These radio contacts are approximately 10 minutes in length and allow students and educators to interact with the astronauts through a question-and-answer session.

An ARISS contact is a voice-only communication opportunity via Amateur Radio between astronauts and cosmonauts aboard the space station and classrooms and communities. ARISS contacts afford education audiences the opportunity to learn firsthand from astronauts what it is like to live and work in space and to learn about space research conducted on the ISS. Students also will have an opportunity to learn about satellite communication, wireless technology, and radio science. Because of the nature of human spaceflight and the complexity of scheduling activities aboard the ISS, organizations must demonstrate flexibility to accommodate changes in contact dates and times.

Amateur Radio organizations around the world, NASA, and space agencies in Russia, Canada, Japan and Europe sponsor this educational opportunity by providing the equipment and operational support to enable direct communication between crew on the ISS and students around the world via Amateur Radio. In the US, the program is managed by AMSAT (Radio Amateur Satellite Corporation) and ARRL (American Radio Relay League) in partnership with NASA.

More Information
Interested parties can find more information about the program at www.ariss.org and www.arrl.org/ARISS.

For proposal information and more details such as expectations, proposal guidelines and proposal form, and dates and times of Information Sessions go to http://www.arrl.org/hosting-an-ariss-contact. Please direct any questions to ariss(a)arrl.org

[ANS thanks ARISS for the above information]

Proposals For Symposium Papers Are Still Being Accepted

AMSAT Space Symposium Proceedings Chairman, Dan Shultz, N8FGV, reports, that to date, he has received eight proposal for presentations at the 2015 AMSAT Space Symposium. He is extending the deadline for final versions of the papers to September 28. Anyone wishing to present a topic at Symposium or wishes to have paper published in the proceedings should contact Dan A.S.A.P. with information about your proposed paper, n8fgv (at) usa (dot) net . Papers will be presented at the Symposium to be held on the weekend of October 16-18, 2015, at the Crown Plaza Hotel, Dayton, Ohio.

[ANS thanks Dan n8fgv for the above information]

Undergraduate Student Instrument Project -- 2015 Flight Research Opportunity

NASA's Science Mission Directorate, in collaboration with the National Space Grant College and Fellowship Program, is seeking proposals from U.S. institutions of higher education for the

Undergraduate Student Instrument Project's Student Flight Research Opportunity. Proposals should outline plans to develop an undergraduate-led project team that will fly a science and/or technology payload relevant to NASA's strategic goals and objectives on a sounding rocket, balloon, aircraft, suborbital reusable launch vehicle or CubeSat launched on an orbital launch vehicle.

Funding is available to all U.S. institutions of higher education (e.g., universities, four-year colleges, community colleges, or two-year institutions) and to institutions involved in the Space Grant program. Prospective project teams can be composed only of undergraduate students from U.S. institutions of higher education. Graduate students are not eligible to be project team members; however, they are encouraged to serve as mentors to the undergraduate student team and are permitted to request a mentoring stipend.

Interested institutions must submit a Notice of Intent by email by 11:59 p.m. EDT, Oct. 1, 2015. Proposals are due on Nov. 20, 2015.

For more information and instructions for submitting a proposal, visit http://go.nasa.gov/1WR586S .

An optional teleconference for those interested in submitting proposals will take place on Sept. 10, 2015, at 2 p.m. EDT. Visit the link above for details.

Please direct questions about this request to David Pierce at david.l.pierce (at) nasa (dot) gov.

[ANS thanks NASA Education Express Message -- Sept. 3, 2015 for the above information]

2016 CubeSat Launch Initiative Opportunity

NASA has opened the next round of its CubeSat Launch Initiative to engage the growing community of space enthusiasts that can contribute to NASA's space exploration goals.

The CubeSat Launch Initiative gives students, teachers and faculty a chance to get hands-on flight hardware development experience in the process of designing, building and operating small research satellites. The initiative also provides a low-cost pathway to space for research in the areas of science, exploration, technology development, education or operations consistent with NASA's Strategic Plan.

Applicants must submit their proposals electronically by 4:30 p.m. EST, Nov. 24, 2015. NASA plans to select the payloads by Feb. 19, 2016, but selection does not guarantee a launch opportunity. Selected experiments will fly as auxiliary payloads on agency rocket launches or be deployed from the International Space Station beginning in 2016 and running through 2019. NASA does not provide funding for the development of the small satellites, and this opportunity is open only to U.S. nonpro?t organizations and accredited educational organizations.

For additional information about this opportunity and NASA's CubeSat Launch Initiative, visit http://tinyurl.com/ANS289-NASA-Cubesat and http://www.nasa.gov/directorates/heo/home/CubeSats_initiative.html.

Questions about this opportunity should be directed to Jason Crusan at Jason.Crusan(a)nasa.gov.

[ANS thanks NASA Education Express Message -- Sept. 3, 2015 for the above information]

2015 AMSAT Symposium Dayton Hotel Reservation Correction

The 2015 AMSAT Space Symposium will be held Friday through Sunday, Oct. 16, 17, 18, 2015 in Dayton, Ohio.

This year we will be at the Crowne Plaza Hotel, 33 East 5th Street, in downtown Dayton, a 3.5 star Hotel which has been recently renovated.

Here is the corrected and latest hotel reservation information provided by Crowne Plaza:

+ Reservations toll-free phone number: 1-800-689-5586
+ Group rate reservation code: "AMSAT"
+ Deadline for discounted reservations: September 17, 2015 by 3:00 PM US eastern time

The Symposium Committee announced that arrangements are made for a tour of the Air Force Museum at Wright-Patterson Air Force Base in Dayton for Monday, October 19. You may wish to extend your hotel reservation until Monday if you would like to participate on this tour.

You must call the 800 number for Crowne Plaza to make your hotel reservations. Registration for the Space Symposium and events can be done on-line via the AMSAT Store:
http://store.amsat.org/catalog/

The latest 2015 AMSAT Space Symposium information is posted on the web at:
http://www.amsat.org/?page_id=3667
-or- click on the "Events" tab at the top of the page at
http://www.amsat.org

[ANS thanks the 2015 AMSAT Symposium Posse for the above information]

ARISS News

+ A Successful contact was made between Tomsk State Polytechnical University, Tomsk, Russia and Cosmonaut Mikhail Kornienko RN3BF using Callsign RSØISS.
The contact began 2015-09-01 08:30 UTC and lasted about nine and a half minutes. Contact was direct via RV3DR.
ARISS Mentor was RV3DR.

+ A Successful contact was made between Ulvila Upper Secondary School, Ulvila, Finland and Astronaut Kjell Lindgren KO5MOS using Callsign OR4ISS. The contact began 2015-09-01 11:44 UTC and lasted about nine and a half minutes. Contact was direct via OH1F.
ARISS Mentor was IN3GHZ.

Upcoming ARISS Contact Schedule

Quick list of scheduled contacts and events:

Kazakhstan, direct via TBD
The ISS callsign is presently scheduled to be RSØISS
The scheduled astronaut is Aidyn Aimbetov
Contact is a go for 2015-09-08 07:10 UTC

[ANS thanks ARISS, Charlie AJ9N and David AA4KN for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
EMike McCardel, KC8YLD
kc8yld at amsat dot org